Acute Rheumatic Fever
In Los Angeles County

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■ *There was a general downward trend in the reported incidence of acute rheumatic fever in Los Angeles County during the years 1954-1963. A survey of hospital records in five large hospitals in 1962 revealed 100 cases diagnosed, 39 of which were reported. Diagnoses in the charts reviewed conformed to the Modified Jones Criteria. Most of the patients were born in Los Angeles County.*

Mortality rates for acute rheumatic fever during the same period were greatly in excess of those expected from the reported morbidity. The mean crude mortality rate for the period concerned was higher than for New York City, although not as high as for Boston.

Acute rheumatic fever appears to constitute a health problem in need of review in Los Angeles County.

THERE IS NOT MUCH INTEREST among medical groups in Los Angeles County in the promotion of community programs dealing with the prevention of acute rheumatic fever. Apparently this is because the disease is considered only a minor health problem hereabouts. Since it appears to be the basis for a generally held opinion, the magnitude of the problem in the Los Angeles community seemed worth determining. Hence the present study.

Reporting

Health Departments. The California State Department of Public Health lists acute rheumatic fever as a reportable disease.[1] As shown in Chart 1, during the last ten years there was a general downward trend in the reported incidence of acute rheumatic fever in Los Angeles County, while the reported streptococcal infections remained of a constant magnitude.

With rare exceptions—for example, smallpox and poliomyelitis—reportable diseases are not completely reported. It can be assumed, then, that not all cases of acute rheumatic fever are reported. But what proportion is reported?

Hospital Records. Records of cases for the year 1962 (the last year for which full records were available) in which the discharge diagnosis was acute rheumatic fever were reviewed in five of the largest general hospitals in Los Angeles County. In addition, medical records librarians of 15 hospitals with over 200 beds were asked the number of patients discharged with that diagnosis in that year.

There were 100 cases diagnosed in the 20 hospitals during the year. The total number of cases

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reported in the County during the same period was 39.

Of 33 charts in the five largest hospitals, 13 were for patients resident in the city of Los Angeles. Six of these 13 within the jurisdiction of the city health department were reported.

Patient Characteristics, Disease Manifestations and Treatment

Twenty-eight of the 33 charts at the five largest hospitals were reviewed. The following comments apply only to the group of charts reviewed. As indicated in Tables 1, 2, 3, and 4, distributions for age and sex and manifestations seemed to follow ordinary patterns.[7] Distribution for race seemed consonant with the populations served by the hospitals concerned. In general, treatment followed accepted recommendations for eradication and prophylaxis of beta hemolytic streptococcus. The use of steroid therapy was not statistically related to the presence or absence of carditis.

Morbidity and Mortality

Figures for deaths in Los Angeles County during the nine-year period 1954-1962 which were coded as due to acute rheumatic fever (ISC 400-402) are shown in Table 5. If one accepts the supposition that not more than one in twenty cases of acute rheumatic fever should be fatal, the case fatality rate is 5 per cent or less. If expected morbidity is computed from mortality using this rate, approximately ten times as many cases are occurring as are reported. If the case fatality rate is lower, such as the 1.2 per cent found in the Co-operative Rheumatic Fever Study of 1955, then even more cases are occurring.[3] If one assumes, on the other hand, that some of the deaths were miscoded, then the expected morbidity on the table should be decreased. Twelve of the 21 patients reported as having died of rheumatic heart disease in 1961 were residents of Los Angeles City. Dr. Herbert Cowper, Director, Division of Communicable Diseases, reviewed the 12 death certificates with the attending physician and found that in five cases death was not due to acute rheumatic fever.[4] Whether these 12 cases are representative of the 196 deaths recorded for the period is not known.

The accuracy of the diagnosis listed on the death certificates in Los Angeles County, however, is probably comparable to that in other areas.

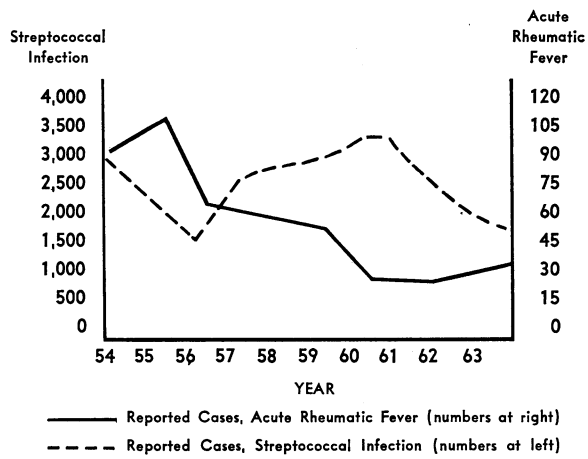

Chart 1.—Streptococcal and acute rheumatic fever reporting, Los Angeles County, 1954-1963.

TABLE 1.—*Age and Sex, 28 Patients with Acute Rheumatic Fever*

	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	Total
Male	2	6	1	1	1	....	11
Female	6	8	2	....	....	1	17
Total	8	14	3	1	1	1	28

TABLE 2.—*Age and Race, 28 Patients with Acute Rheumatic Fever*

	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	Total
Negro	4	6	....	....	....	....	10
White	4	8	2	1	1	1	17
Unknown	....	....	1	....	....	....	1
Total	8	14	3	1	1	1	28

TABLE 3.—*Age and Place of Birth, 28 Patients with Acute Rheumatic Fever*

	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	Total
Calif.—L.A. County	3	5	....	....	....	....	8
Calif.—L.A. County or elsewhere	2	3	....	....	....	....	5
Outside California	2	5	1	....	1	1	10
Unknown	1	1	2	1	....	....	5
Total	8	14	3	1	1	1	28

TABLE 4.—*Data on Manifestations of Disease and on Treatment Reported in 28 Cases of Acute Rheumatic Fever*

	Nature of Treatment								
	Steroid	No Steroid	ASA*	No ASA*	Penicillin Received	No Penicillin Received	Prophylaxis	No Prophylaxis	Unknown
Carditis	7	10	11	6	13	4	12	3	2
No Carditis	2	9	10	1	9	2	10	....	1
Total	9	19	21	7	22	6	22	3	3

*Acetylsalicylic acid.

TABLE 5.—*Acute Rheumatic Fever Morbidity and Mortality, Los Angeles County, 1954-1963*

Year	Deaths	Expected Morbidity[1]	Cases Reported
Total	196	3,920	617
1954	31	620	99
1955	29	580	110
1956	23	460	74
1957	19	380	68
1958	19	380	63
1959	17	340	58
1960	22	440	35
1961	21	420	32
1962	15	300	39
1963	[2]	[2]	39

[1] Assuming a 5 per cent case fatality rate. [2] Not available.

TABLE 6.—*Acute Rheumatic Fever Deaths in Los Angeles County Compared with Other Areas, 1954-1962*

Year	L. A. Co.	Dade Co., Fla.	New York	Boston
Total deaths	196	29	240	52
1954	31	3	61	7
1955	29	3	30	7
1956	23	4	29	1
1957	19	3	29	7
1957	19	7	20	10
1959	17	6	20	5
1960	22	1	26	1
1961	21	0	8	10
1962	15	2	17	4
Mean	22	3.2	27	5.8
	5,680,000	853,000	7,810,000	725,000
Mean per 100,000	0.39	0.38	0.35	0.80

Comparison With Other Areas

Northern cities are supposed to have higher incidence of rheumatic fever than southern cities. It is of interest therefore to note (Table 6) that the mean crude mortality rate for acute rheumatic fever in Los Angeles County is higher than that for New York City, although not as high as for Boston. Interesting also are the equal mortality rates in New York City in the north and Dade County, Florida, in the south. Housing and socio-economic levels are also factors in the incidence of this disease.

Comment

This report is a collection of data gathered from various hospitals, local health departments and a state health department. Although crude and not definitive, they indicate that acute rheumatic fever may have a higher incidence in Southern California than is currently believed. Indeed, the mean mortality rate in Los Angeles County is greater than in New York City although less than in Boston. Both eastern areas have extensive facilities and programs for diagnosis and treatment, as well as follow-up for secondary prophylaxis, which is of vital importance to good rheumatic fever care.

In a recent article from Chicago, Siegal[8] noted that 700 new cases of rheumatic fever were reported in that city in 1962 and 668 in 1963. La Rabida Sanitarium renders care to a significant proportion of children in the Chicago area requiring care in hospital for acute rheumatic fever; and during 1960-1961, 110 patients with first attacks of acute rheumatic fever were admitted to that institution.[6]

Not so many years ago Chavez[7] indicated that acute rheumatic fever was not uncommon in Mexico, and there is a great deal in that country today.[5] Ultan and Goodman[9] recently noted a gradual increase in *reported* cases in Puerto Rico following initiation of educational and preventive programs. Since the climates of these areas are not too different from that in Southern California, it would not be inconsistent to expect a significant incidence of acute rheumatic fever here. The problems of evaluating incidence data are many, and they are thoroughly discussed by Paul.[7]

It is not the purpose of this article to imply that acute rheumatic fever is the most important disease of younger people in Los Angeles County or that it is the most prevalent cardiovascular disease in this locale. From the data presented, however, acute rheumatic fever would appear to constitute a greater health problem than is generally believed. The epidemiology, primary prevention, clinical diagnosis and treatment and secondary prophylaxis of acute rheumatic fever deserve attention and study in this community.

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